

**NATURAL RESOURCES CONSERVATION SERVICE
CONSERVATION PRACTICE GENERAL SPECIFICATIONS**

PRESCRIBED GRAZING

(Acre)
CODE 528A

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Appendix A

General Specifications for all Grazing Lands¹

The following information is to be addressed in all grazing plans.

1. Number, kinds and class of livestock.
2. Number and kinds of wildlife, anadromous streams, waterfowl and shorebirds, if significant and critical wildlife habitat areas.
3. An ecological site inventory of identified vegetation state(s), including species production and/or forage value rating.
4. How the plan will maintain or improve rangeland or pasture conditions (NRCS 1977).
5. Livestock forage and environmental relationships such as:
 - A. Avoiding flood zones during flooding periods.
 - B. Planning accordingly when high-density snow or ice covers forage.
 - C. Livestock capabilities and habits for travel to acquire forage, drinking water and weather protected areas. Consider steepness of terrain and livestock access restrictions caused from trees, shrubs and other factors.
 - D. Limiting use of high-density predator areas during critical livestock or wildlife periods.
 - E. Limiting use of liver fluke infested areas, brucellosis areas, hoof rot environments, and mosquito, nasal bot and warble fly infested areas.
6. Key grazing areas shall be identified on the conservation plan map using the following criteria:
 - A. Be identified for both livestock and wildlife.
 - B. Produce >40 percent of the forage.
 - C. Represent moderate to high use by grazers.
7. Key plants shall be identified in the conservation plan using the following criteria:
 - A. Represent >15 percent composition of the annual production.
 - B. Be an important forage plant suited to meet animal and grazing management objectives.
 - C. Be designated as necessary on a seasonal basis to accommodate seasonal diet composition changes for different animals. With some animal species, it may be necessary to designate two or more different key plants, depending upon season of use.

¹These specifications are not intended to encompass all site-specific situations and experience and judgement will need to be used. Special consideration shall be given to ecological site grazing resiliency, states and transition pathways that may be sensitive to grazing.

- D. Be re-designated as necessary as a result of plant succession or retrogression that results in plant composition changes.
- E. Shall not be grazed at the beginning of a new growing season until they have reached “range” or “grazing readiness”² which is defined in the following:
 - a. For range or native plants, when new plant growth reaches a height equal to or >25 percent of average key species plant height, plants have reached “range readiness.”
 - b. Soils shall be firm to sufficiently support livestock without “root cutting” damage to plants.
- 8. Grazing schedules that assure maintenance or improvement of environmental quality.
- 9. Forage and cover allowances for wildlife habitat requirements. Livestock grazing systems shall be designed to minimize habitat loss for wildlife and/or threatened and endangered plants or animals. Where applicable, livestock grazing systems shall comply with state and federal regulations.
- 10. Documentation of current and historical utilization checks. Document results of grazing utilization checks in conservation plans using SCS 414 or SCS 417.
- 11. Non-grazed period(s) shall be planned for grazing lands with similarity index or forage value rating <60 percent (Appendix C).
- 12. Non-grazed period(s) for lands treated with mechanical, chemical or biological practices. (Appendix D).
- 13. For grazing areas near carrying capacity or potentially subject to natural environmental disasters, a contingency alternative shall be developed.³

² Refer to Table 2 for “grazing readiness” of domesticated forage plants.

³Contingency alternatives shall be developed in the conservation plan to address severe environmental conditions that may threaten livestock survival or otherwise degrade resource quality. Examples of contingency alternatives are potential severe snow and ice conditions (snow density >38%), caribou emigration, wildfire or other possible disastrous event. Alternatives shall be designed to meet minimum designated quality criteria for the specific resource concern (Section III of Field Office Technical Guide) as well as address economic objectives of the land user.

Appendix B

Utilization Specifications for Native Vascular Plants and Lichens.

1. The following vascular plant utilization⁴ specifications shall be used for non-controlled or extensively grazed areas. These specifications are designed to address grazing on rangeland, native pasture, grazed wildlife land and grazed forestland. For pasture and cropland plant, refer to Appendix E.

Utilization Specifications

Grazing may be non-controlled, extensive, or may employ a designed grazing system such as intensive, semi-intensive or rest rotation.⁵ Numbers 1 and 2 of Appendix B contain utilization specifications for vascular plants (grass, sedges, herbaceous plants, shrub and trees). Number 3 contains utilization specifications for non-vascular plants such as lichens. Note: The percent utilization values below refer to current year's growth unless specified differently.

Table 1. Vascular plant utilization specifications for non-controlled grazing or extensive grazing.

Plant Names or Category	Recommended utilization (percent)
<u>During growing season</u>	
Bluejoint reedgrass (<i>Calamagrostis canadensis</i>)	<30
Sedges (<i>Carex</i> spp)	<30
All other vascular plants	<50
Dwarf shrubs growing on alpine sites	<20
<u>During dormant season</u>	
Herbaceous vascular plants	<65
Deciduous woody plants	<70
Evergreen woody plants	<60
Dwarf shrubs growing on alpine sites	<25

2. Vascular plant utilization for grazing systems using controlled management of livestock (intensive, semi-intensive or rest rotation grazing management), shall use the following criteria:
 - A. Grazing schedule and utilization intensity designed so that frequency and timing of grazing cycle will allow for sufficient plant re-growth to improve or maintain similarity index or forage value rating to >60 percent.
 - B. Vary according to plant phenology, physiological and climatic conditions occurring during the grazing cycle.

⁴ Utilization is expressed as percent weight of current year's growth removed.

⁵ Refer to Swanson and Pendleton, 1986 for detailed interpretation of extensive and intensive grazing. The terms extensive and intensive grazing systems which are traditionally used for managing reindeer ranges are also used here for traditional livestock and all land uses that are grazed by livestock and reindeer. An extensive grazing system involves very little grazing management or basically the animals are free roaming with no controls. Intensive and semi-intensive grazing systems employ rest rotation strategies and employ grazing seasonal management units (winter, spring, summer, fall). Where management units are used herein, they apply to all land uses that are grazed e.g., pasture, grazed forest, grazed cropland, native pasture, wildlife land and rangeland.

- C. Provide for sufficient plant residues and litter to remain and maintain or enhance site hydrology.
3. Lichen ranges >60 percent similarity index subjected to non-controlled yearly grazing by caribou, muskox, Dall sheep or reindeer shall comply with one of the following⁶:
- A. Utilization of key fruticose lichens such as *Cladina* spp, *Cladonia* spp, and *Cetraria* spp shall be <10 percent by weight (air-dry) of live lichen biomass.
 - B. Utilization not to exceed Lichen Utilization Cover Class 3.5 (Swanson and Knapman, 1986).
4. Lichen ranges <60 percent similarity index that are subject to non-controlled grazing every year by caribou, muskox, Dall sheep or reindeer shall comply with one of the following. If trend is not improving, rest will be needed (refer to Appendix C).
- A. Utilization of key fruticose lichens shall be <5 percent by weight (air-dry) of live lichen biomass.
 - B. Utilization not to exceed Lichen Utilization Cover Class 2 (Swanson and Knapman, 1986).
5. Lichen ranges >60 percent similarity, grazed by reindeer using intensive, semi-intensive or rest rotation grazing systems shall meet one of the following:
- A. Utilization shall be <45 percent by weight (air-dry) of the live-lichen biomass, which includes grazing and/or trampled areas. After grazing, the winter management unit shall be rested for a period of four to six years or an appropriate period.
 - B. After an area has been grazed, specialists and reindeer herder shall evaluate utilization intensity. An appropriate rest period will be established and documented in the conservation plan. The rest period shall be a sufficient length of time to allow for lichens to accumulate to >80 percent by weight (air-dry) of the planned lichen biomass reserves.
6. Lichen ranges grazed by reindeer that are <60 percent similarity index and employ intensive or semi-intensive grazing systems shall be:
- A. Evaluated individually prior to developing a grazing schedule and conservation plan.
 - B. Grazed according to a grazing schedule designed to meet quality criteria for all resource concerns.
 - C. Rested or deferred from grazing as appropriate. Refer Appendix C for designing non-grazing schedule.
 - D. Evaluated by specialists and the reindeer herder to determine utilization intensity after each winter-spring grazed season.

⁶If it is necessary to evaluate vascular plant utilization in lichen ranges, use vascular plant specifications.

Appendix C

Non-grazing Period(s) to Improve Similarity Index or Forage Value Rating

A non-grazing period(s) shall be used to enhance similarity index rating, forage value rating or improve trend. For additional information on grazing periods and grazing guidelines, refer to Klebesadel and Laughlin (1964) et al. **Rest** herein defined refers to a non-grazing period(s) longer than the grazing period, whereas **deferment** or **defer** refers to a grazing period longer than the non-grazing period(s).

1. General information for designing non-grazing period(s):
 - A. All domestic livestock must be excluded from unit(s) during non-grazing period(s) except upon rare occasions.
 - B. When designing non-grazing period(s), include a key forage plant that has appropriate plant growth habits and is adapted to seasonal climatic variability that will accommodate the grazers needs.
 - C. The non-grazing period(s) start date shall coincide with the beginning of a major growth period and continue until key plants have developed a mature seed crop, or otherwise reached an acceptable stage of "grazing readiness".
2. Use non-grazing period(s) for vascular plant ranges that are in need of improved plant vigor, similarity index or trend, using one of the following:
 - A. If rangeland similarity index is <25 percent, rest one full growing season or until similarity index is >25 percent and the plant community is moving towards the historic climax or desired plant community.
 - B. If rangeland similarity indices are between 26 to 60 percent, defer for 45 consecutive days during the growing season every 3 to 4 years or until trend is moving in a positive direction.
 - C. If making assessments based upon range health, rest or defer until rangeland is healthy and stable.
3. Non-grazing period(s) for lichen range, lichen/forest or lichen woodland under-story.
 - A. Rest or defer until live-lichen biomass is stable and accumulating faster than dead lichen biomass. Live-lichen accumulation shall continue to a point where live-lichen biomass is >60 percent by weight (air-dry) of that amount of planned live-lichen biomass defined in the management objectives. Trend shall also be moving towards management objectives.
 - B. Rest or deferment can be implemented by using semi-intensive or intensive grazing management. Plan to monitor grazing carefully at the end of each grazing season.
4. Use the following for resting grazed forest or native pasture that is dominated by vascular plants.
 - A. If <25 percent desirable forage value rating, rest one full growing season followed the next season with a spring or fall deferral period. Repeat spring or fall deferred period every two to three years until >25 percent desirable forage value rating is reached. If site does not respond it may be necessary to prescribe a grazing sequence that decreases grazing and increases rest and/or deferment periods.

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- B. When resting native pasture for relatively long periods, closely monitor re-growth, growth and establishment of woody plant species. Apply appropriate management strategies to obtain historic climax or desired plant community.
 - C. If 25-50 percent desirable forage value rating exists, defer a minimum of 45 days every 3 to 4 years.
5. For natural disaster damaged forage resulting from wind, hail, insect defoliation, fire, drought, overflow, flooding or other similar types of mechanical damage, rest or defer until plants have made adequate recovery and are suitable for grazing.

Appendix D

Non-Grazing Period(s) for Grazing Lands Following Planting, Mechanical or Chemical Treatment.

The following described non-grazing periods are to be used to improve plant vigor, similarity index, forage value rating or trend for those lands where range, forest or pasture improvements are implemented for the purpose of enhancing forage or total plant biomass production. **Rest** herein defined refers to a non-grazing period(s) longer than the grazing period, whereas **deferment** or **defer** refers to a grazing period longer than the non-grazing period(s).

1. Following chemical brush treatment, grazing lands are to be deferred. Defer for at least the length of time indicated on herbicide label. If additional deferment is necessary, as applicable use the following:
 - A. Where rangeland similarity index or desirable forage value rating is <50 percent, defer from time of chemical application through remainder of growing season.
 - B. Where rangeland similarity index or forage value rating is >50 percent, defer a minimum of 45 consecutive days during the growing season following treatment.
 - C. Plants treated with slow acting soil herbicides shall be rested at first visual signs of chemical activity through remainder of first growing season. Additional deferment periods following treatment shall be based upon plant physiological needs.
 - D. When chemical control is applied after July 15th, defer the remainder of the growing season as well as 45 consecutive days during succeeding spring.
 - E. Where chemical control is used on <10 percent brush canopy, a deferment period is desirable, but will not be required unless specified on the herbicide label.
2. For tree dozed or chained areas recovering from treatment that are supporting pre-existing vegetation use the following:
 - A. If similarity index or desirable forage value rating is <50 percent, defer the remainder of the growing season after dozing or chaining.
 - B. If control is done after July 15th, rest until mid growing season the next year.
 - C. Design grazing to accommodate different vegetation states and transition pathways for summer and winter logged areas.
 - D. Monitor rest or deferment periods as needed.
3. For tree dozed and chained areas that have been re-seeded with adapted species:
 - A. Closely monitor seedling density, vigor and survival.
 - B. Provide a rest period for new seedlings or seedlings that are not being intensively managed.
 - C. If the plant vigor is good, the area should be deferred for a minimum of 45 consecutive days during the growing season following tree dozing or chaining.
 - D. If plant vigor is poor, rest for one full growing season.

- E. If treatment is completed after July 15th, the area shall be deferred during the next spring growing season.
 - F. For other mechanical methods (including hand cutting), use an appropriate rest or deferment period as needed.
4. Use non-grazed period(s) for grazing lands following seeding or planting.
- A. In all instances, rest shall start the first growing season following seeding.
 - B. Seedings that exhibit poor vigor, but have sufficient cover to prevent erosion, should be rested until the following growing season. Rest or deferment periods during succeeding growing seasons may be needed to enhance seedling establishment or plant vigor.
 - C. Light grazing may be tolerated during the first dormant season if plants are sufficiently established and adequately resist seedling damage caused by grazing.
 - D. Exclude European wild boar and domestic hogs from all seedings or grass plantings until satisfactorily established. Monitor use on a frequent basis and watch for signs of rooting.
 - E. In forests managed for wood products that support birch, aspen and spruce regeneration, exclude livestock until saplings are capable of recovering from moderate browsing.
5. Use non-grazing period(s) to enhance wildlife habitat.
- A. To enhance mid and late summer wildlife forage plants, rest from spring through late summer.
 - B. To enhance late winter wildlife forage plants, rest from early fall through winter until spring growth.
 - C. When wildlife browse and perennial forbs exhibit low plant vigor, rest a full growing season and thereafter defer as needed.
 - D. For sharp tail grouse, rest fall and winter in an effort to accumulate previous year's residual grass cover.
 - E. For important waterfowl, shore bird staging and nesting areas; rest during summer and fall to enhance seed producing sedges, grasses and forbs.
6. For weed infested grazing land, controlled grazing and browsing can be used for short periods during winter and early spring as a weed control practice. Grazing should be followed by a non-grazing period(s) during the spring or spring-summer growing season as needed.
7. To develop a forage reserve (including accumulation of fine fuel for prescribed burning) use a non-grazing period(s) during peak of the growing season to accumulate comparable biomass as follows:
- A. Defer 30 consecutive days or a full growing season in the arctic zone.
 - B. Defer 45 consecutive days in the interior portions of Alaska.
 - C. Defer 60 days in coastal zones of Western to Southeast Alaska and on Bering Sea and Pacific Islands.
8. Use a non-grazing period(s) for plants following a prescribed burn or moderate intensity wildfire.

- A. If range similarity index or forage value rating is <50 percent, rest a full growing season immediately following burn.
 - B. If range similarity index or forage value rating is >50 percent with good plant vigor, defer a minimum of 45 days immediately following the burn.
 - C. Non-grazing period(s) shall occur during key plant growing season.
 - D. Increase forage palatability by scheduling grazing as necessary to accomplish the planned objective.
9. Pastureland.
- A. To maintain plant vigor, non-sod forming perennial cool season grasses shall be deferred 15 to 20 days prior to first killing frost.
 - B. To promote legume reseeding in over-seeded or naturally re-seeded settings, a non-grazing period(s) is needed to allow mature dry seed heads to form. Dates will vary.
 - C. Continuous yearlong use shall be planned only in settings where cross fencing or separation is impractical and no other grazing areas are available.
10. See Exhibits for examples of various pasture and grazing calculations.

Appendix E

Utilization on Pasture and Cropland

For pastureland utilization specifications, grazing readiness and re-growth cycles refer to Table 2. Refer to Appendix F for management considerations on grazed cropland. For additional guidance on pastureland management for nutrients and pests, refer to Nutrient Management and Pest Management Practice Standards and Specifications.

TABLE 2. Plant Grazing Heights and Growth Cycles for Pastureland.⁷

DOMESTICATED OR ADAPTED NATIVE PLANTS	RECOMMENDED HEIGHTS FOR GRAZING READINESS (in.) ⁸	RECOMMENDED MINIMUM GRAZING HEIGHT (in.) ⁹	RE-GROWTH CYCLE PERIOD TO PRODUCE QUALITY FORAGE (days) ¹⁰
Bluegrass, Kentucky	2	3	15-20
Bromegrass, Smooth	5	4	25-30
Fescue, Red	5	4	25-30
Bluejoint Reedgrass	8	8 ¹¹	20-30
Creeping Meadow Foxtail	5	2	20-25
Reed canarygrass	6	6	25-30
Ryegrass, perennial	4	2	20-25
Timothy	5	2	20-30
Oats and Peas	6	4	18-28
Red Clover	3	3	18-25
White Dutch Clover	2	2	18-25
Sweet Clover	8	7	21-30
Alsike Clover	2	2	14-21

⁷To determine grazing utilization heights for plants grazed during plant dormancy, use the column entitled Recommended Minimum Grazing Height.

⁸Plant is not to be grazed until they have exceeded these heights and achieved "grazing readiness." "Grazing readiness" or when plants are suitable for grazing, applies to a new grazing season, new rotation cycle or newly established seedlings. Grazing before plants reach "grazing readiness" will limit root growth, weaken the plant and suppress future plant production.

⁹Plants grazed at these heights should produce adequate forage under average growing conditions. For some species, this height is also the minimum for erosion control or maintenance. To optimize forage production, plants should be allowed to grow at least 2 inches longer than noted. Using seasonal deferment, the additional leaf and culm length prior to grazing will allow plants to be more productive. If a grazing system such as high intensity/low frequency or other intensively managed system is employed by the manager, the District Conservationist may re-define the minimum grazing height for that specific grazing system, provided forage production and plant composition are sustained on a long term basis.

¹⁰ Based upon favorable plant growing conditions, longer cycles will be needed during stress periods and shorter cycles may be needed during fast growth periods. These assumptions are based upon the premise that adequate water is available and plant nutrients are not limiting.

¹¹25 percent of the mature plant height can also be used for this native species.

Appendix F

Management Considerations on Cropland

Cropland grazing can involve two major phases: 1) grazing of a growing crop and regrowth of forage and 2) grazing crop stubble after harvest (little or no regrowth).

Grazing of all crops and stubble must be managed so that adequate crop residue remains for erosion control. Refer to the following standards and specifications as appropriate:

1. Residue Management (Seasonal), for erosion control.
2. Nutrient Management and Pest Management for fertilization and weed control.
3. Irrigation Water Management, for timing and water quantity.

Grazing Small Grains (Barley, Oats, Rye)

If small grains are used for grazing, initiate grazing when plants are about eight inches tall, fully tillered and have a well-developed coronal root system.

Appendix G

Management Intensive Grazing (MIG)

There are many forms, variations, and names of rotation grazing approaches and concepts. Some of the more common ones are controlled grazing, time-controlled grazing, cell grazing, intensive grazing, strip grazing, management intensive grazing, etc. They all have one thing in common; there is more than one grazing unit (pasture) involved and decisions are based on knowledge and other controllable resources. They all have a specific plan and goals.

Without control, there can be no management. Four basic areas of control to any successful grazing program are:

1. Control of Space - how much area is to be grazed.
2. Control of Time - how long the area is to be grazed or rested.
3. Control of Numbers - how many animals are to be placed in the area to be grazed. This gives the ability to control stocking density in any given grazing unit at a stated point in time.
4. Control of the Animal - the ability to place the animal when and where they are wanted, for as long as they are needed.

The most economical method to obtain the above control is through sub-divisions with the use of permanent or temporary electric fences. The greatest effect occurs when a grazing unit is simply divided in two; from zero rest to each unit rested 50 percent of the time. As the grazing units further increase, the percent of rest does not increase at the same rate. Having four grazing units results in each unit being rested 75 percent of the time, while eight units results in each unit being rested 87.5 percent of the time.

The objective of increased grazing units is to raise stock density to the level required to produce uniform grazing which results in more uniform, higher quality, regrowth. The more sub-divisions there are, the greater the availability for change. Generally eight to twelve grazing units for one herd is a good starting point and provides acceptable control. Very good control is achieved with twelve to 26 grazing units. Any number up to that is better than one, and control is increased with number of units.

Grazing periods during the growing season will vary according to seasonal climatic fluctuations, number of grazing units and desired objectives. Generally, the grazing period in any one grazing unit should be about two to seven days. Longer grazing periods will result in the following:

1. Increased repeated grazing on the same plants.
2. Increased spot grazing.
3. Increased overgrazing.
4. Reduced forage production potential.
5. Wasted forage.

Residue left or stubble height remaining following a grazing period is the single most important component of forage recovery in management intensive grazing. The amount of residue or stubble remaining directly influences the amount of recovery time needed before being able to regaze in the next cycle. The remaining stubble height needed will vary by species being managed as well as the season and climatic factors. Generally, the higher the stubble height remaining, the faster the recovery.

Recovery periods or the length of the non-grazing period(s) is defined as the length of time from the last day of the grazing period to the first day of the next grazing period. Recovery period allows regrowth of the species being managed and it is vitally important to have adequate regrowth before the next grazing period begins.

Recovery periods will vary with climatic conditions, residue or stubble height remaining, and the growth characteristics of the species being managed. Recovery period is probably the single most important forage management component of management intensive grazing. Generally, recovery periods can be grouped as follows for most tame pasture species with fast growth rates:

1. 10 to 15 days during periods of rapid growth.
2. 16 to 25 days during periods of medium growth.
3. 25 to 35+ days during periods of slow growth.

A common mistake made by many producers when learning management intensive grazing is to attempt to utilize every grazing unit in every grazing cycle to some predetermined residue or stubble height. Within each grazing cycle, different utilization may be appropriate depending upon season, growing conditions, animal nutrient requirements, and specific management objectives. For example, if the spring surge of growth is topped off and regrowth is vigorous, then the forage production of the entire season stands a better chance of being favorable. This is accomplished by leaving a greater amount of residue or stubble, hence lower utilization, in the first and sometimes second grazing cycle.

Flexibility. Producers must remain flexible to change management as needed. Never use absolute rigid management. Never lock in an absolute stocking rate, a set grazing period, a set recovery period, or a set day to rotate. The decisions must be based on forage and stock needs.

Reserves. There must be reserves to compensate for changes in forage production or stock numbers and these might be forage or feed reserves of many forms. Being prepared for dry spells with reserve forage in the form of either a reserve pasture, hay, or sacrifice area, will save a lot of worrying when the producer faces such a situation. Being prepared is another way of having control.

See Exhibits for Example of Grazing Calculations for Management Intensive Grazing.

EXHIBITS**2 Pasture System
4-4-4 (2x4)**

DEC. - MAR.	
A	B
G	R

APR. - JUL.	
A	B
R	G

AUG. - NOV.	
A	B
G	R

**1st
Year**

DEC. - MAR.	
A	B
R	G

APR. - JUL.	
A	B
G	R

AUG. - NOV.	
A	B
R	G

**2nd
Year****R=Rest****G=Graze**

Pasture	DJFM	AMJJ	ASON	DJFM	AMJJ	ASON	*
A	GRAZE	REST	GRAZE	REST	GRAZE	REST	
B	REST	GRAZE	REST	GRAZE	REST	GRAZE	

**2 Pasture System
3-6-3**

FEB. - APR.	
A	B
G	R

MAY - OCT.	
A	B
R	G

NOV. - JAN.	
A	B
G	R

**1st
Year**

FEB. - APR.	
A	B
R	G

MAY - OCT.	
A	B
G	R

NOV. - JAN.	
A	B
R	G

**2nd
Year****R=Rest****G=Graze**

Pasture	FMAM	JJAS	ONDJ	FMAM	JJAS	ONDJ	*
A	GRAZE	REST	GRAZE	REST	GRAZE	REST	
B	REST	GRAZE	REST	GRAZE	REST	GRAZE	

* Letters represent the months of the year

EXHIBITS

3 Pasture System 1 Herd

FEB. - APR.			MAY - JUL.			AUG. - OCT.			NOV. - JAN.			1st Year
A	B	C	A	B	C	A	B	C	A	B	C	
G	R	R	R	G	R	R	R	G	G	R	R	

FEB. - APR.			MAY - JUL.			AUG. - OCT.			NOV. - JAN.			2nd Year
A	B	C	A	B	C	A	B	C	A	B	C	
R	G	R	R	R	G	G	R	R	R	G	R	

R = Rest G = Graze

Pasture	FMA	MJJ	ASO	NDJ	FMA	MJJ	ASO	NDJ	*
A	Graze	Rest		Graze	Rest		Graze	Rest	
B	Rest	Graze	Rest		Graze	Rest		Graze	
C	Rest		Graze	Rest		Graze	Rest		

3 Pasture System 2 Herd

FEB. - APR.			MAY - JUL.			AUG. - OCT.			NOV. - JAN.			1st Year
A	B	C	A	B	C	A	B	C	A	B	C	
G	G	R	R	G	G	G	R	G	G	G	R	

FEB. - APR.			MAY - JUL.			AUG. - OCT.			NOV. - JAN.			2nd Year
A	B	C	A	B	C	A	B	C	A	B	C	
R	G	G	G	R	G	G	G	R	R	G	G	

R = Rest G = Graze

Pasture	FMA	MJJ	ASO	NDJ	FMA	MJJ	ASO	NDJ	*
A	Graze	Rest	Graze		Rest	Graze		Rest	
B	Graze		Rest	Graze		Rest	Graze		
C	Rest	Graze		Rest	Graze		Rest	Graze	

* Letters represent the months of the year

Exhibits

Examples of Calculations and Management on Small Grain Pastures

Fall Phase

Estimating Stocking Rates

- Estimate available forage above a three to four inch stubble height.
- Estimate additional growth
- Calculate grazing days

Example:

$$\frac{(a) 1200 \text{ lbs. forage/ac} + (b) 100 \text{ lbs. additional growth}}{(c) 92 \text{ days (Aug 1 - Oct 31)}} =$$

14.13 lbs. forage/ac/day available

.03 (% body weight consumption) = 471 lbs. beef/ac average for this phase.

Grazing Management

- Grazing cycle approximately 25 days; 5 pastures - 1 herd; graze approximately 5 days - recovery period approximately 20 days
- Cycle 1 - remove 25 percent
- Cycle 2, 3, and 4 - repeat
- Do not graze below a three to four inch stubble height

Spring Phase

Estimating Stocking Rates

- Estimate available forage above a three to four inch stubble height
- Estimate additional growth from residual nitrogen
- Estimate additional growth from added nitrogen
- Calculate grazing days

Example:

$$\frac{(a) 0 + (b) 400 \text{ lbs. forage/ac} + (c) 1100 \text{ lbs forage/ac}}{(d) 76 \text{ days (May 15 to July 30)}} =$$

19.73 lbs. forage/ac/day available

.03 (% body weight consumption) = 658 lbs. beef/ac average for this phase

Grazing Management

- Raise stubble height from three inches to six inches and maintain
- Grazing cycle approximately 24 days: 12 pastures - 1 herd graze approximately 2 days - recovery period approximately 22 days
- Maintain at least three inches of stubble height on last cycle for residue management

Exhibits

Example of Grazing Calculation for Management Intensive Grazing

Forage Requirements

1. Daily Forage Requirement = Total live-weight x rate of intake

Example: 1000 lb./HD x .026 lb. DM/day/lb. live-weight = 26 lb. DM/HD/day

2. Forage for Grazing Period = Daily feed requirement x length of grazing period

Example: 26 lb. DM/HD/day x 3 day = 78 lb. DM/HD for grazing period (3 days)

Pasture Allocation

3. Forage Required for herd = Feed/HD x No. of head

Example: 78 lb. DM/HD x 100 HD = 7800 lb. DM for herd for grazing period (3 days)

4. Forage on Offer = Forage required for herd/Utilization rate

Example: 7800 lb. DM

.50 (utilization) = 15600 lb. DM offered during grazing period

5. Required Paddock Size = Forage on offer/Available forage

Example: 15600 lb. DM

2600 lb.* DM/ac = 6 ac per paddock

*Total annual production for this example is 5200 #/ac (air -dry). Available for forage is 50% or 2600 #/ac (air-dry).

Stock Density Equation

6. Stock Density = $\frac{\text{Available forage} \times \text{Utilization rate}}{\text{Daily intake} \times \text{Length of grazing period}}$

Example: $\frac{2600 \text{ lb. DM/ac} \times .50}{.026 \text{ lb. DM/lb. Live-weight/day} \times 3 \text{ day}} = 16667 \text{ lb. live weight/ac}$

If cows weigh 1000 lb., this would be equivalent to approximately 16-17 cows per acre.

Number of Paddocks Required

7. Paddock Number = $\frac{\text{Length of grazing period} + \text{Rest period}}{\text{Length of grazing period}}$

Example: 3 days + 33 days

3 days = 12 paddocks

Utilization rate is available forage for grazing by the animal and is expressed as a percent; e.g. it is in addition to the amount that would need to remain such as residue or stubble.

References

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